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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,226	08/22/2003	Izaya Okae	3712174.00424	1391
29175	7590	09/16/2011		
K&L Gates LLP P. O. BOX 1135 CHICAGO, IL 60690			EXAMINER ECHELMAYER, ALIX ELIZABETH	
			ART UNIT 1729	PAPER NUMBER
			NOTIFICATION DATE 09/16/2011	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

chicago.patents@klgates.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/646,226	<b>Applicant(s)</b> OKAE ET AL.	
	<b>Examiner</b> Alix Elizabeth Echelmeyer	<b>Art Unit</b> 1729	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2011.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 6,7,9,10,12-14,16,17,19,20 and 22-29 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 6,7,9,10,12-14,16,17,19,20 and 22-29 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 8, 2011 has been entered.
2. Claims 6, 12, 16, 19, 22, and 23 are amended. Claims 24-29 are added. Claims 6, 7, 9, 10, 12-14, 16, 17, 19, 20, and 22-29 are pending and are rejected finally for the reasons given below.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6, 7, 9, 12, 13, 16, 17, 19, 20, and 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaura (JP 2002-075368) in view of Abe (US 6,258,483) and Kurose et al. (WO00/02280, with US 6,824,924 used as an English translation, since it is the 371 of the foreign application) and as evidenced by Chaloner-Gill et al. (US 2002/0192137).

Yamaura teaches a positive electrode active material for a nonaqueous electrolyte cell wherein the particles of active material are of the formula  $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$  wherein M is one of Al, Co, and B, and the surfaces of the particles are covered by particles of the general formula  $\text{LiFePO}_4$  (abstract, [0001]).

Yamaura teaches coating of the  $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$  particles with the  $\text{LiFePO}_4$  particles by mixing in a hybridization system, adjusting the rotational speed to produce the desired product ([0054], [0055]). Since this same method is disclosed in the instant specification (page 11 lines 18-26), the skilled artisan would find that the resulting product would be the same.

In paragraph [0037] of the instant disclosure, applicants name  $\text{LiFePO}_4$  as a preferable positive active material but fail to state explicitly that  $\text{LiFePO}_4$  is of the olivine structure.

Chaloner-Gill teaches that crystalline lithium iron phosphate has an olivine structure ([0126]).

Yamaura fail to teach the claimed weight percent of  $\text{LiFeO}_4$  to lithium nickelate substrate.

Abe teaches a battery having a positive active material having one material coated on another (column 6 lines 2-5). Abe further teaches that the right amount of coating should be determined, since if there is too much or too little the active material will not have the desired properties of both materials (column 13 lines 38-48).

Art Unit: 1729

One of ordinary skill in the art could have applied the improvement of Abe of determining the best ratio coating to base particle to the ratio of nickelate to  $\text{LiFeO}_4$  in Yamaura and the results would have been predictable.

Regarding claims 7, 17, 20 and 23, the  $\text{LiNi}_{1-x}\text{M}_x\text{O}_2$  particles are  $11.458\text{ }\mu\text{m}$  on average and the  $\text{LiFePO}_4$  particles are  $0.185\text{ }\mu\text{m}$  on average ([0054]).

With further regard to claims 6, 12, 16, 19, and 22-29, Yamaura fail to teach the claimed weight percent of  $\text{LiFeO}_4$  to lithium nickelate substrate.

Abe teaches a battery having a positive active material having one material coated on another (column 6 lines 2-5). Abe further teaches that the right amount of coating should be determined, since if there is too much or too little the active material will not have the desired properties of both materials (column 13 lines 38-48).

Further, when the desired ratio of  $\text{LiFePO}_4$  particles to nickelate is determined as discussed above, the claimed coating thickness would result since the thickness is determined by the amount of coating material.

One of ordinary skill in the art could have applied the improvement of Abe of determining the best ratio coating to base particle to the ratio of nickelate to  $\text{LiFeO}_4$  in Yamaura and the results would have been predictable.

Yamaura fails to teach the lithium nickelate compound of instant claims 6, 9, 12, 13, 16, 19, 22 and 23.

Kurose et al. teach  $\text{LiNiO}_2$  as a positive electrode active material (column 2 lines 56-58). Kurose et al. further teach that the use of  $\text{LiNiO}_2$  as a positive electrode active material leads to a reduction in size and weight in the battery, increasing energy density.

It would be desirable to use  $\text{LiNiO}_2$  as a positive electrode active material in the battery of Yamaura such as taught by Kurose et al. since it would lead to a reduction in size and weight in the battery, increasing energy density.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to look to the teachings of Kurose et al. suggesting the use of  $\text{LiNiO}_2$  as a positive electrode active material in the battery of Yamaura, since such a substitution of  $\text{LiNiO}_2$  for the lithium nickel oxide of Yamaura would result in the reduction of size and weight of the battery, leading to an increase in energy density.

5. Claims 10 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaura et al. in view of Abe et al. and Kurose et al. and as evidenced by Chaloner-Gill et al., as applied to claims 6 and 12 above, and further in view of Goodenough et al. (US 6,391,493).

Yamaura et al. in view of Abe et al. and Kurose et al. fail to teach that the olivine compound of the positive active material is  $\text{LiMnPO}_4$ .

Goodenough et al. teach that that a preferred olivine electrode compound is  $\text{LiMnPO}_4$  (column 2 lines 22-24), since it has a larger free volume for lithium-ion motion,

Art Unit: 1729

which leads to higher lithium-ion conductivity and higher power density, as well as making an inexpensive and nonpolluting battery (column 1 lines 51-57).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to look to the teachings of Goodenough et al. suggesting the use of  $\text{LiMnPO}_4$  as a positive electrode active material in the battery of Yamaura in view of Kurose et al., since such a substitution of  $\text{LiMnPO}_4$  for the  $\text{LiFePO}_4$  of Yamaura is obvious over the teachings of Goodenough et al.

### ***Response to Arguments***

6. Applicant's arguments filed August 8, 2011 have been fully considered but they are not persuasive.

Applicant argues that Yamaura in view of Abe et al. and Kurose fail to teach the claimed relative amount of the olivine compound in the positive active material. The examiner disagrees.

The following response is from the Examiner's Answer mailed June 8, 2011: Applicant states that Abe refers to an alkaline secondary battery, which the examiner notes is a different battery chemistry than that of Yamaura. Yet, Abe is relied upon in the rejection for the teaching that it was known in the art at the time of the invention to optimize the amount of coating in a coated positive active material compound particle. The examiner finds that it would have been obvious to the skilled artisan at the time of the invention to apply the known method of Abe of optimizing the relative amounts of the base particle and the coating material in a coated active material to the particles of

Art Unit: 1729

Yamaura and the results would have been predictable. The examiner has combined the teachings of Yamaura with those of Abe in order to show that it would have been obvious to the skilled artisan to optimize the relative amounts of the two materials. Appellant has not provided any teaching or showing that the claimed weight percent range provides unexpected results.

### ***Conclusion***

7. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



Art Unit: 1729

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ula Ruddock can be reached on 571-272-1481. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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